POSIFLEX

HT-4600 /
PB-4600 SERIES
TECHNICAL MANUAL

Rev. : Original

SOME IMPORTANT NOTES

FCC NOTES

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with limits for a Class A digital device pursuant to subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures to correct the interference.

WARRANTY LIMITS

Warranty will terminate automatically when the machine is opened by any person other than the authorized technicians. The user should consult his/her dealer for the problem happened. Warranty voids if the user does not follow the instructions in application of this merchandise. The manufacturer is by no means responsible for any damage or hazard caused by improper application.

ABOUT THIS MANUAL

This manual assists the user especially the software programmer who provides the software system for POS application to utilize the hardware of the HT-4600 & PB-4600 series which are members of the POSIFLEX integrated point-of-sale terminal product family. The HT-4600 is a compact point-of-sale system that gives the most user friendly application interface by providing a 12" touch control LCD panel and combines the performance and affordability of personal computers with the elegance and reliability of business machine. The PB-4600 is a derivation from HT-4600 with the 12" touch control LCD panel removed to allow free discrete application. Both HT-4600 & PB-4600 series provide the built-in networking capability for easy communication among multiple terminals in addition to the data transfer and control through back office server.

The manufacturer of the HT-4600 & PB-4600 series heartily apologizes to the user for reserving the right to change or to modify this manual without notice due to the rapid and constant progress and improvement on science and technology. The user may always obtain the most up to date information or software utilities through any of our web sites:

http://www.posiflex.com.tw; *http://www.posiflex.com*; *http://www.posiflexusa.com*

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OVERVIEW

SCOPE

The Posiflex range of HT/PB-4600 terminals have been designed and manufactured to meet the high end demand on POS systems. It incorporates all the advances of PC technology within a rugged housing designed for use in a hostile retail environment. By providing an integrated design, it has retained many of the secure features of a traditional ECR and has avoided the wiring "spaghetti" associated with more traditional PC solutions. This Open Standard Architecture ensures that this terminal can use the PC application software and development tools that are now inexpensively available and abundant.

For the HT-4600 series terminal is powered by most up to date CPU and provides a color TFT LCD screen with a resistive type touch control panel on sturdy and easily adjustable structure on top of the main unit. HT/PB-4600 series may be used as a self-content unit or as one of several terminals in a network system controlled by a "back office" computer through the integrated network interface. Versatile options besides the basic model selection can apply to it as well.

FEATURES

- **CPU:** Intel Penryn 575 2.0G+
- **HDD:** 160 GB or above.
- **RAM:** DIMM socket x 2, DDR-2 667/800MHz, Max 4GB
- **Data storage device:** SATA HDD 2.5" 160 GB or SDD HDD
- **Touch control functions**: left/right button, double click, drag & draw
- **Ethernet Networking:** One LAN port Ethernet 10/100/1000 Base T with LAN status indicators on jack (green for link, yellow for data transmission)
- **Serial Ports:** There are 4 serial ports and another extendable 2 serial ports in HT/PB-4600 system. +5V power supply for COM 2/3 by BIOS software setting;

+12V power on COM2/3 by jumper setting. The COM2/3 is default as no power at delivery.

- **Parallel Port:** Each HT/PB-4600 system is equipped with a parallel port that supports SPP/EPP/ECP.
- **VGA Port:** There is a VGA connector for connection of external monitor with + 12 V DC power supply included. It is default as no power at delivery.
- **USB Ports:** The HT/PB-4600 series is equipped with 6 USB type A connectors for connection of USB (Universal Serial Bus) devices.
- **PS/2 KB Port:** 1 PS/2 KB port
- **PS/2 Mouse Port:** 1 mouse port
- **Audio Port:** 1 Mic. in / audio line out port
- **CR Port:** Capable of controlling 2 cash drawers max.
- **PCI Slot:** 1 PCI extension slot.
- **Modem Ring-Up, LAN Or Alarm Wake-Up:** The HT/PB-4600 series can be turned on automatically upon an incoming COM port Modem call or LAN status or data packet received on LAN or a preset time/day/week/month.
- **+12V of VGA port can be set up through BIOS control.**

OPTIONAL ITEMS

THE OPTIONAL ITEMS

Note: These items below must be installed by the qualified technician. Attempt to apply them by end users is either too difficult or is likely to cause damages. Italic items below are stand alone peripheral devices.

a) **Data Storage:** SSD kit
b) **Wireless LAN Adaptor**(Optional)**:** USB interface, IEEE 802.11b/g
c) **Preload OS:** Win XP Pro, WEPOS, POSReady or Linux.
d) **Support CRT2 through SDVO interface.**
e) **2nd VGA ports for PB-4600:** One for main Display and another one for second display.
f) **PA-4200: +24V power kit for printer.**

g) **Optional COM 5/6 for additional peripherals.**

h) **SSD HDD**

i) **2nd SATA HDD with RAID control board.**

GENERAL SPECIFICATION

SYSTEM

- CPU: Supported CPU as following table.

CPU	Clock
Celeron 575	2.0GHz,
T3100 (Duo code)	1.9GHz,
P8400 (Core 2 Duo)	2.26GHz,
T9400 (Core 2 Duo)	2.53GHz,

- RAM: DIMM socket * 2 ,DDR-2 667/800MHz ,Max 4GB
- 2.5" HDD in SATA interface

POWER SOURCE

DC power adaptor:

Item	Specification
Voltage range of power input	100 ~ 240 V AC
Load limit of power input	2.5 A max.
Input frequency	47 / 63 Hz
Output voltage	12 V DC
Output current	6.6 A max.

System:

Total Power Consumption / Models	Normal	Maximum
PB-4600	40W	80 W
HT-4600	80 W	

SYSTEM POWER ON/OFF CONTROL

- One main power ON/OFF push switch at side, this switch can be programmed as "ON" only
- System can be waked up after each power off by any of the preset timer or a remote COM port MODEM call or LAN wakeup packet
- System can be switched off by software command through local or remote program control
- Forced power off when switch is ON/OFF or when switch is ON only with prolonged effort
- Power OFF to ON duration: 10 seconds minimum.

12VDC POWER SUPPLY INTO SYSTEM

- O / P : 12 +/- 1 V DC 6.6 Amp.
- I / P : 110 VAC/2.5A or 240 VAC/1.2A max., 47 ~ 63 Hz

OVERALL POWER OUTPUT LIMIT

- Including COM 2/3 ports: + 5 V DC / 1 Amp max or +12V DC/ 1 Amp max
- All normal USB: 5 V DC / 500 mA each port.
- VGA: +12 V DC/1 A

INPUT / OUTPUT PORTS

- 1 x mini DIN 6 pin female PS/2 KB jack
- 1 x mini DIN 6 pin female PS/2 mouse connector
- 1 x VGA display port for external monitor (for HT&PB-4600) or additional 2nd (for PB-4600) display
- 1 x parallel port
- 1 x LAN port (Ethernet 10/100/1000 base T)
- 6 x USB ports
- 4 x serial communication ports. COM 2/3 each can supply DC +5V through pin 9.
- 1 x CR port
- 1 x mini DIN 4 pin power input jack
- 1 x Audio line out + 1 x Mic. in connector
- Optional COM 5/6 ports

TOUCH PANEL (For HT-4600 Only)

- Extremely endurable life survives minimum up to 35,000,000 touches at same spot
- Touch control interface: USB
- Sensor type: resistive type
- Touch resolution: 1024 x 1024
- Calibration: initial calibration at setup only, no re-calibration required for day to day power on/off
- Driver support: Win XP, POSReady and Linux.

PRELOAD OS

- Option among Win XP, WEPOS and POSReady.

OPERATOR DISPLAY (HT-4600 only)

Display Type	COLOR TFT 12.1" LCD
View area	246 mm x 184 mm (9.7" x 7.3")
Internal interface	LVDS
Control knob	Brightness
Resolution	1024 X 768
Memory size	Support DVMT 5.0
Tilt angle	15° ~ 50°
Swivel angle	0° ~ 16° clockwise

LED INDICATOR IN LCD PANEL

- Power ON / Standby LED: blue/orange dual color for system ON/OFF status, external power status,
- LAN status LED: yellow/green dual color for link, communication (green: LAN link; steady green with flickering yellow: data transmission)

AUDIO PORT

- 3.5 Ø mono jack for Mic. In
- 3.5 Ø stereo jack for audio out
- 30 db gain for microphone input

EXTERIOR

- **HT-4600 DIMENSIONS:**

  LCD @ 15°:   295 mm (W) x 263 mm (D) x 342 mm (H) or
  11.6" x 10.4" x 13.5"

	LCD @ 50°:	295 mm (W) x 258 mm (D) x 289 mm (H) or
		11.6" x 10.2" x 11.4"
	PACKING:	408 mm (W) x 338 mm (D) x 375 mm (H) or
		16.1" x 13.3" x 14.8"

- **PB-4600 DIMENSIONS:**

	SYSTEM:	279 mm (W) x 243 mm (D) x 114 mm (H) or
		11.0" x 9.6" x 4.5"
	PACKING:	370 mm (W) x 317 mm (D) x 250 mm (H) or
		14.6" x 12.5" x 9.8"

- **WEIGHT:**

	NET WEIGHT
HT-4600 Pro	5.2 kg (11.5 lbs)
PB-4600 Pro	3.3 kg (7.3 lbs)

ENVIRONMENTAL

- **TEMPERATURE RANGE (excl. UPS battery):**

    Operating: 0°C ~ +40°C or 32°F ~ 104°F

    Non-operating: -20°C ~ +80°C or -4°F ~ +176°F

- **TEMPERATURE RANGE for UPS battery:**

    Operating: 0°C ~ +35°C or 32°F ~ 95°F

    Non-operating: -20°C ~ +40°C or -4°F ~ +104°F

- **HUMIDITY RANGE:**

    Operating: 20%RH ~ 80%RH, non-condensing,

    max. wet bulb 26°C (78.8°F)

    Non-operating: 10%RH ~ 80%RH, non-condensing,

    max. wet bulb 28.9°C (84.0°F)

ACCESSORIES

- User's manual
- COM1 terminator
- Power adaptor 12 V DC 80 W plus power cord
- Product Information CD or Recovery CD of preloaded OS

COMPLIANCE APPROVALS

- Whole system meet CE, FCC class A standard (Meet IEC61000-4-2/-3/-4/-5/-6/-8/-11)
- Power supply is UL, VDE approved
- RoHS

OPTIONS

SECOND DISPLAY ON BASE

MODEL Number	LM2010
Display Type	Color TFT 10.4"
View Area (mm)	211.2 x 158.4
Interface	VGA
Internal Interface	1 channel LVDS
Luminance	230 cd/m^2 typ.
Backlight	CCFL x 1
Contrast Ratio	500 : 1
Resolution	800 x 600 (SVGA)
Color Depth	16 bits true color (262,144)
Tilt Angle	Stand straight (as 0°) to backward till touching main unit
Swivel Angle	N. A.
Power Source	DC 12 V in VGA

CUSTOMER DISPLAY UPGRADE KIT

MODEL Number	PD-2601/U	PD-307/U	PD-7621
Display Media	VFD	LCD	
Number of rows	2		4
Characters per row	20		15 or 30
Character width (mm)	5.25	6.0	4.27 or 8.47
Character height (mm)	9.03	9.66	8.47

Character format	5 X 7		8 x 16 or 16 x 16
Character code pages	14	1	1
International character sets	12	1	1
Command modes	6	2	1
Display color	Green w/ Blue or Green filter	Dark blue / Yellow green background	White / Blue background
Contrast adjust	N. A.		2 buttons
Display area (mm x mm)	157.05 x 22.86	142.8 x 20.64	127.16 x 33.88
Display head size (mm)	197 x 56 x 58	196.7 x 57.5 x 39.6	212.7 x 78.5 x 43.5
Mounting method	Pole mount on base		
Pole height (mm)	200		
Horizontal slide (mm)	N. A.		
Horizontal rotation	270°		
Inclined viewing angle	15°, 30°, 45°		
Power source	5 V DC in DB9 or USB		5 V DC in DB9

DRAM EXPANSION

- DDR2 SDRAM DIMM in 2 sockets up to total 4 GB max.

UPGRADE KIT KP-200 for HT-4600

- To be installed to right side of HT series LCD panel
- Functions include: 36 keys + key-lock programmable keypad, MSR, smart card reader
- Interface: USB
- **PROGRAMMABLE KEYPAD:**
  1. 1 electronic 6-position control key to lock up or determine among 5 different pages of programmable keys
  2. 16 key numeric keypad with a double sized "Enter" key

3. 20 programmable single keys of size 19 x 19 mm
- **MAGNETIC STRIPE READER:**
  1. Reader head options: ISO 2 tracks (track 1 + track 2); ISO 3 tracks (track 1 + track 2 + track 3)
  2. Characteristic parameters of ISO readers can be set via software
  3. AAMVA/CA DMV format supported in ISO 3 tracks model
- **SMART CARD READER:**
  1. PC/SC 1.0 standard, EMV level I

SIDE MOUNT UPGRADE KIT SD300

- To be installed to right side of HT series LCD panel
- Functions include: MSR, optical type finger print sensor
- Interface: USB
- **MAGNETIC STRIPE READER:**
  1. Reader head options: ISO 2 tracks (track 1 + track 2); ISO 3 tracks (track 1 + track 2 + track 3)
  2. Characteristic parameters of ISO readers can be set via software
  3. AAMVA/CA DMV format supported in ISO 3 tracks model
- **OPTICAL FINGERPRINT SENSOR:**
  1. Detection area : 14.6 x 18.1 mm (nominal at center)
  2. Gray scale   : 8 bits (256 levels)
  3. Resolution   : 512 dpi (average x, y over the field)

CASH DRAWER CONTROL CABLE

- 2 in 1 cash drawer control cable 20863023400 for independent control over two cash drawers of CR-2200 /CR-3100 /CR-3200 /CR-4000 /CR-4100 /CR-6310

WIRELESS LAN

- IEEE 802.11b/g with USB interface

2ND HDD WITH RAID CONTROL BOARD

- 2.5" SATA HDD.
- SATA HDD RAID CONTROL CARD(FT607A)

SSD HDD

- 2.5" SATA interface
- SSD can't coexist with HDD in main unit

PA-4200 ADAPTOR BOARD

- +24V power supply for printer.
- PCI interface.

PRINTER:

- **PP-2000**
  1. 2-station receipt/journal/validation printer
  2. Dot matrix 9 pin
  3. Bi-directional printing
  4. Auto cutter provides full cut and partial cut
  5. Auto-detect between RS232 and EPP interface
- **PP-5200**
  1. High speed thermal line printer up to 220 mm/sec
  2. High-resolution printing 8 dots/mm and 432 dots/line
  3. Supports application environment of DOS, Windows, OPOS or WEPOS
  4. Low noise high reliability
  5. Drop-and-load structure for paper roll loading
  6. Easy print head cleaning
  7. Guillotine type Auto cutter provides paper partial cut and a manual cut
  8. 10 KB input butter

9. Built-in character registration function with 256 KB flash memory for downloading and storing special character pattern or graphics for store logo
10. Supports option either alarm type or buzzer type kitchen alarm

- **PP-5600**
  1. Dot matrix impact 9 pin
  2. Bi-directional printing
  3. Friction feed type
  4. 40 columns for 16.9 CPI
  5. Accepts paper width 3 inches (76 mm)
  6. Prints on ordinary or up to 3-fold carbonless copy paper

- **PP-5700**
  1. Dot matrix 9 pin
  2. Bi-directional printing
  3. Sprocket feed type
  4. 2 models for single pass or double pass print of Chinese characters
  5. 4.4 lines per second for single pass or 2.2 lines per second for double pass print
  6. 8 KB input buffer
  7. 40 columns (20 columns Chinese) or 35 columns (17 columns Chinese)

- **PP-6800 series**
  1. Paper jams can be solving by push the "Hood Release Button" directly.
  2. Fast-speed printing (150mm per second).
  3. Supports application environment of Windows or OPOS or Linux.
  4. Low noise thermal printing.
  5. Drop-and-load structure for paper roll loading.
  6. Cash drawer control up to 2 cash drawers.
  7. Supports enhancement capability in kitchen bell for reminder function.

8. Default with serial interface, option for parallel, USB, WI-FI or LAN interface by plug in module.

- ● **PP-8000**
  1. Supports UPOS 1.8
  2. WEPOS compliant
  3. High speed thermal line printer up to 220 mm/sec
  4. High resolution 8 dots/mm by 512 dots/line (576 dots max.)
  5. Epson TM-T88 IV compatible command set
  6. Low noise high reliability
  7. Auto guillotine type cutter provides single point left partial cut
  8. Thermal sensitive paper roll at width 80 mm or 58 mm
  9. Supports UPC-A, EAN(JAN)13/8, ITF, CODE39, CODABAR printing
  10. Supports printing on label with marker on the other side
  11. Supports option spill protect cover
  12. Supports option either alarm type or buzzer type kitchen alarm
- ● **PP-8000L**
  1. LAN interface
  2. All other features same as PP8000
- ● **PP-8000U**
  2. USB interface
  3. All other features same as PP8000

RELIABILITY INFORMATION

- **TOUCH PANEL LIFE EXPECTANCY (TOUCHES AT SAME SPOT):**

    RESISTIVE TYPE: 35,000,000 UP

- **MSR LIFE EXPECTANCY: 500,000 PASSES**

- **WHOLE SYSTEM MTBF: 50,000 Hrs at 90% confidence level.**

SYSTEM DEFINITIONS

BLOCK DIAGRAM
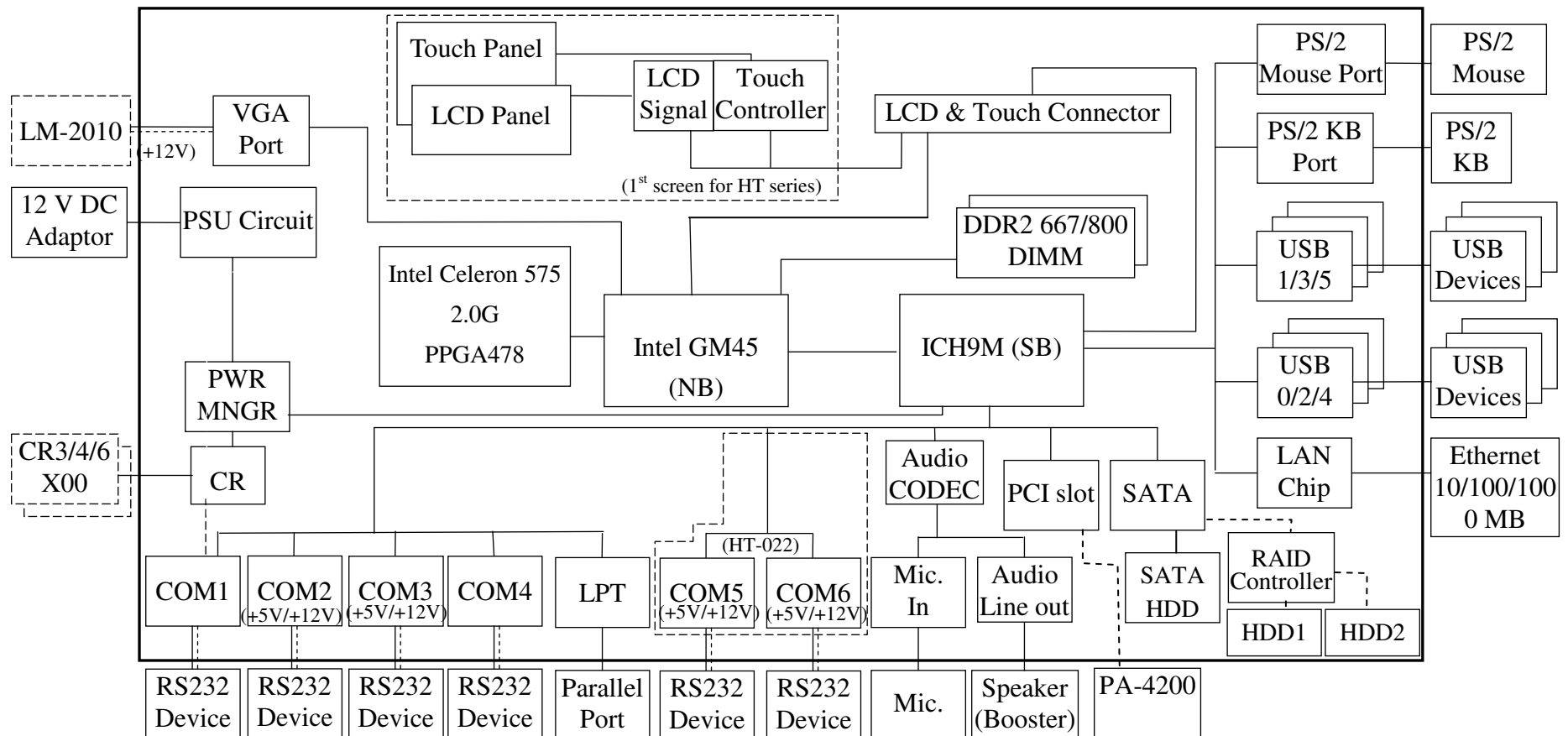
12 V DC IN CONNECTOR

PIN ASSIGNMENT OF 4 PIN PLUG:

PIN #	DEFINITION
1	+12 V
2	+12 V
3	GND
4	GND
CASE	CHASSIS GND
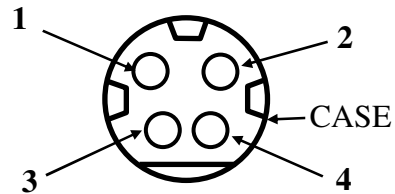
LAN PORT

PIN ASSIGNMENT OF 8 PIN TELEPHONE JACK:

PIN #	DEFINITION
1	TD1 +
2	TD1 -
3	TD2 +
4	TD2 -
5	TD3 +
6	TD3 -
7	TD4 +
8	TD4 -
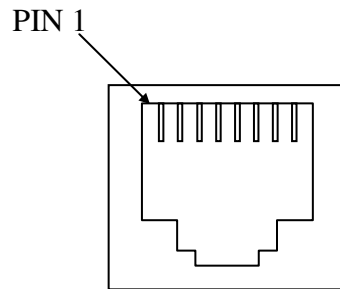
- **This port is defined as 100/1000 base T or 10 base T LAN port.**

This port is utilized by the system in pnp (Plug-N-Play) way.

VGA CONNECTOR

- **This port is a standard 3 x 5 D-sub VGA connector**

PIN #	DEFINITION	PIN #	DEFINITION	PIN #	DEFINITION
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	DDC_DATA
3	BLUE	8	GND	13	HSYNC
4	NC	9	NC/+12V	14	VSYNC
5	GND	10	GND	15	DDC_CLK

SERIAL PORT COM1/4

PIN ASSIGNMENT OF 9 PIN D SUB MALE CONNECTOR:

PIN #	DEFINITION	ALTERNATIVE	DEFAULT SETTING
1	DCD		BATTWK
2	RX		
3	TX		
4	DTR		
5	GND		
6	DSR		
7	RTS		
8	CTS		
9	RI	CR OPEN for COM 1	NC for COM 1
			RI for COM 4

PIN 1
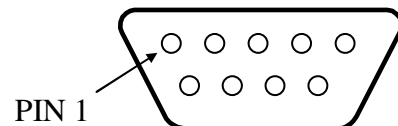
SERIAL PORT COM2/3

PIN ASSIGNMENT OF 9 PIN D SUB MALE CONNECTOR:

PIN #	DEFINITION	ALTERNATIVE	DEFAULT SETTING
1	DCD		DCD
2	RX		
3	TX		
4	DTR		
5	GND		
6	DSR		
7	RTS		
8	CTS		
9	RI	+5/+12V VDC	NC

For the power supply of COM 2/3 ports and VGA port, it can be setup through BIOS setting. Once switch on the terminal, press "Del" key to enter BIOS. Please select "Integrated Peripherals" in the main menu as well as choose "SB GPIO Control". Afterward, there are COM 2/3 port and VGA port power set up function can be select. Please remember that if there is no need for power supply in these I/O ports, please disable these functions.

PIN 1
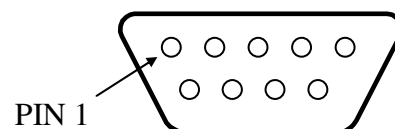
CAUTION: VGA port +12V is dedicate for Posiflex 2nd monitors implementation only. It must disable this power when this VGA port connect to other monitor, otherwise the monitor will burn out.

PARALLEL PORT LPT1

PIN ASSIGNMENT OF 25 PIN D SUB FEMALE CONNECTOR:

PIN #	SPP MODE	EPP MODE	ECP MODE
1	- STROBE	-WRITE	-STROBE
2	D0	D0	D0
3	D1	D1	D1
4	D2	D2	D2
5	D3	D3	D3
6	D4	D4	D4
7	D5	D5	D5
8	D6	D6	D6
9	D7	D7	D7
10	- ACK	INTR	-ACK
11	BUSY	-WAIT	BUSY, PeriphAck
12	PE	NU	Perror, -AckReverse
13	SLCT	NU	SLCT
14	- AUTO FEED	-Datastb	-AutoFeed, HostAck
15	- ERROR	NU	-Fault, -PeriphRequest
16	- INIT	NU	-Init, -ReverseRequest
17	- SLCT IN	NU	- SLCT IN
18	GND	GND	GND
19	GND	GND	GND
20	GND	GND	GND
21	GND	GND	GND
22	GND	GND	GND
23	GND	GND	GND
24	GND	GND	GND
25	GND	GND	GND

PS/2 KEYBOARD CONNECTOR

PIN ASSIGNMENT OF 6 PIN MINI-DIN FEMALE CONNECTOR:

PIN #	DEFINITION
1	KBDAT
2	NC
3	GND
4	VCC
5	KBCLK
6	NC

PS/2 MOUSE

PIN ASSIGNMENT OF 6 PIN MINI DIN JACK:

PIN #	DEFINITION
1	PMDAT
2	NC
3	GND
4	VCC
5	PMCLK
6	NC

USB0 / USB1 / USB2 / USB3 / USB4 / USB5

PIN ASSIGNMENT OF EACH 4 PIN JACK:

PIN #	DEFINITION
1	VCC
2	-DATA
3	+DATA
4	GND

PIN 1
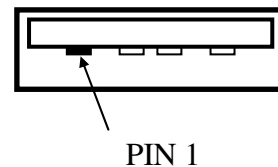
CASH DRAWER CONNECTER

PIN ASSIGNMENT OF EACH 6 PIN RJ11 TYPE MODULAR JACK:

PIN #	DEFINITION
1	GND
2	DRAWER KICK 1
3	DRAWER OPEN SENSE
4	+POWER
5	DRAWER KICK 2
6	DRAWER OPEN RETURN

PIN 1
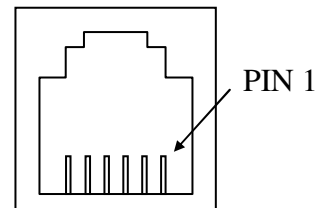
AUDIO OUT

PIN ASSIGNMENT OF 3.5 Ø STEREO JACK:

CONTACT ON PLUG:	DEFINITION:
TIP	R
RING	L
OUTER	GND

MIC. IN

PIN ASSIGNMENT OF 3.5 Ø MONO JACK:

CONTACT ON PLUG:	DEFINITION:
TIP	IN
OUTER	GND

APPLICATION GUIDES

POWER SUPPLY TO I/O PORTS

For the power supply of serial and VGA ports, it can be setup through BIOS setting. Once switch on the terminal, press "Del" key to enter BIOS. Please select "Integrated Peripherals" in the main menu as well as choose "SB GPIO Control". Afterward, there are COM 2/3 DB9 +5V and VGA +12V set up function can be select. Please remember that if there is no need for power supply in these I/O ports, please disable these functions.

COM1 APPLICATION COMMENT

The COM1 delivered with the system should always be applied whenever there is no regular RS232 device connected to this port. It is definitely inadvisable to connect serial devices like serial mouse to COM 1 port without thorough investigation. The reason is that some input devices do not provide standard RS232 hardware handshaking signals. When the system issues any command to cash drawer controller or power management controller, the hardware handshaking signal would be in error status and could halt this port if COM 1 is not connected properly. Any possible cross-link to the command for cash drawer or power manager that is also using COM1 at 9600bps, none parity, 8 data bits, 1 stop bit should be avoided. An index summary of such commands is tabulated at end of this chapter.

CASH DRAWER

The cash drawer connector on the HT-4600 / PB-4600 series can be connected with the split cable to control 2 cash drawers. The software command to open the cash drawer with the cable delivered with the cash drawer or the first cash drawer with the optional 2 in 1 cash drawer control cable is a hexadecimal code of <07> sent to COM1 port under the protocol of 9600bps, none parity, 8 data bits, 1 stop bit.

The software command to open the second cash drawer with the optional 2 in 1 cash drawer control cable is a hexadecimal code of <17> sent to COM1 port under the same protocol as above.

The drawer open status can be obtained through checking the communication status of COM1 at signal RI. When there is no drawer open, the RI signal of COM1 is always set. When there is any cash drawer opened, the RI signal of COM1 is reset. The RI signal is obtained as the bit 6 (the second most significant bit) of the I/O address 3FEh if the COM1 address is set to 3F8h~3FFh (conventional address for COM1) in system configuration.

PS/2 INTERFACE DEVICE

If the HT-4600 / PB-4600 series is not installed with any regular PS/2 keyboard nor Posiflex programmable keyboard at system boot up, the application of some PS/2 interface device such as a bar code scanner could encounter some trouble if the OS used is Win 2000. The registry modification as hot fix mentioned in web site http://support.microsoft.com/default.aspx?scid=kb;en-us;262798 does not work in this series. The only solutions are to connect a PS/2 keyboard or Posiflex programmable keyboard for the application or to use an USB interface device (e.g. bar code scanner) instead of the PS/2 interface one or to use other OS.

EXTENDED DUAL DISPLAY MODE

The second monitor (besides the LCD display on HT-4600) connector is a standard VGA type 3 x 5 pins D connector and can be configured through jumper setting change to support the power for second display screen LM-2010 on rear base of the machine. Please **disable the power supply** in this port per Hardware Details in later chapter when it is to be connected with **other type of monitor**. However, if extended dual display mode (1st and 2nd screen showing different pictures) is required, please note that it can be supported only in VGA driver for Windows XP.

CUSTOMER DISPLAY

The rear pole mount customer display PD2601 upgrade kit of USB model can be connected to any available USB port with an internally supplied power from the HT-4600 / PB-4600 series. The RS232 model PD-2601 or PD-7321 can be connected to any available COM port and use the power supplied through COM port after BIOS setting change set per instruction in Hardware Detail. Please refer to the user's manual of customer display for detail instructions on use of the PD.

POWER ON/OFF CONTROL

HARDWARE POWER SWITCH

Whenever the HT-4600 / PB-4600 series is to be powered on for the first time after connected to external AC power, this switch must be engaged to turn on the power. This switch is originally an "ON/OFF" power switch. It can be programmed into a power "ON" only switch through software command. To program this switch, the programmer needs to issue the following mentioned commands in the application program to COM1 under the protocol: 9600 bps, parity none, 8 data bits, 1 stop bit.

- **Change to power on only switch –** the command string is <1B> <19> <01> or alternatively <1B> <00> <00> <00> <00> <00> <00> <18> in hexadecimal format.
- **Change to power on/off switch -**- the command string is <1B> <19> <00> or alternatively <1B> <00> <00> <00> <00> <00> <18> <00> in hexadecimal format. (default status)

In case the power switch status has been changed from the default status, the switch function will remain after power off. However, if the AC power has been disconnected during the power off stage, such change will be discarded. Therefore, it is advisable for the application program to reinstate the switch function every time the system is rebooted or every time the program is executed to ensure the proper action of the power switch. This function can also be achieved by use of the Posiflex Power Switch Terminal Manager.

SOFTWARE SWITCH OFF

An easy method for software control to turn the system off is the software off switch. This function can be very useful in unattended application. The hexadecimal command string for software switch off function is : <06> <16> <19> <1D> <n>.

In the above, the "n" indicates the time delay in seconds for actual power off after the command string given to COM1. However, an alternative command string <1B> <00> <00> <00> <00> <00> <00> <00> can be used instead to turn off the system power immediately.

Some operating system or software may require complete termination of application programs before system power off for the sake of system maintenance. In that case the programmer has to program the command to close the application programs (just like "Alt+F4" in Windows), and then at the end of the closing operation, the application program should issue the above mentioned software switch off command string to COM1 under the protocol: 9600 bps, parity none, 8 data bits, 1 stop bit.

FORCED SWITCH OFF

In case of serious system halt due to system resources conflict or any reason, the system could fail to power off through normal means. The Forced Power Off method is designed for such occasions. With the external power switch defined as power ON/OFF switch (default status), push down and hold this Power ON/OFF Switch. The system will be powered off within 10 seconds in this way. Whenever the machine receives a software command to change the external power switch to ON only, the forced power off function is disabled. However, an enhance power off command is provided for the software programmer to allow forced power off after changing the switch to be ON only. The enhance forced power off command string is <1B> <00> <00> <00> <00> <00> <18> <18> and it has to be sent in same way like the ON only switch command. This enhanced forced power off requires the user to keep the switch pressed for a longer period between 10 to 20 seconds to function.

In case the system halt situation is so serious that some hardware/firmware registrations are already confused, this above-mentioned forced power off could

though very unlikely still fail. When such situation happens, please remove the external power input from the adaptor and disconnect the UPS battery for few minutes to reset the hardware registers.

One example of the need for this forced power off function could happen when power switch is triggered within 10 seconds of last switching off. It is a common practice that once the system power is switched off there should be some waiting time before next switching back on. If the system power is switched off and on in very short time chances are the system LED could indicate power on status while the system remains off. In such case, please use the forced power off function to cancel the error and wait for 10 seconds before switching on again.

AUTOMATIC POWER ON CONTROL

When the system is turned off after a successful boot up, the preset automatic power on functions if set as below will keep monitoring for the preset conditions and turn on the system when the preset conditions are met.

Please note that if the system is improperly turned off before a complete boot up procedure, the above preset power on control functions will be disabled until next turning off after a complete boot up.

ALARM CLOCK WAKE UP

To utilize Alarm Clock Wake Up function, the user should enter the CMOS setup by pressing "Del" key at system boot up, choose for "IRQ/Event Activity Detect" in "Power Management Setup" and make the "RTC Alarm Resume" enabled and set the alarm to required time. Save the configuration and exit the CMOS setup program. The Preset Power On Control will then be ready.

MODEM RING UP

To utilize Modem Ring Up function, the user should enter the CMOS setup by pressing "Del" key at system boot up, choose for "IRQ/Event Activity Detect" in "Power Management Setup" and make the "Modem Ring Resume" enabled and connect the RS232 modem to any COM port except COM1 port. However, please note that for this application, there should be no cash drawer connected to the CR port of the main unit. Otherwise, the drawer open signal could interfere the system power management. Save the configuration and exit the CMOS setup program. The Preset Power On Control will then be ready.

LAN WAKE UP

In this application, there needs to be 1 master machine and 1 target machine connected together through LAN. Both machines should be using same brand of LAN chip.

First the MAC address of the target machine should be checked. Please obtain the file "RSET8139.EXE" from Posiflex Product Information CD in subfolders like \Drivers\KS631X\LAN_621 and execute this file on the target machine. Select the item "View Current Configuration" in the Main Menu and write down the 6 2-digit numbers of the item "Ethernet Address:" for the network technician. Then the target machine should be powered off in a normal way with AC power supply and LAN connections.

Now the networking technician at the master machine can execute the same file "RSET8139.EXE" and select "Run Diagnostics" → "Run Power Management Test" → "Master Machine" → "Magic Packet". There will popup a dialog box. Enter the registered 6 2-digit Ethernet Address of the target machine and press "Enter" then the target machine of that Ethernet Address will be automatically powered up.

FINGERPRINT SENSOR

When the system is delivered with SD-300 or SD-310 with fingerprint sensor and when the system has preloaded OS, the driver for the optical fingerprint sensor will be installed for separated demonstration on use of the fingerprint sensor. For software developers to use all functions of the sensor in their AP, proper SDK (software development kits) should be purchased from the sensor module supplier. The supplier for the sensor module used in SD-300 / SD-310 is Digital Persona, Inc. and the module used is "U.are.U 4000B". It is advisable to visit their web site:
http://www.digitalpersona.com/developers/products.php

SMART CARD READER

The Windows driver for the smart card reader can be found in the subfolder "\Drivers\KP\SC200" in the Posiflex Product Information CD. The reader is PC/SC 1.0 compliant. This reader is also EMV level 1 compliant. It is also supported by Microsoft CCID generic class driver. The applicable smart card reader includes both asynchronous and synchronous type smart cards. For asynchronous type smart card, it reads the card with T = 0 and T = 1 protocols up to 340 Kbps of EMV and ISO modes. For synchronous type smart card, coverage includes: 2-wire (SLE4432/42), 3-wire (SLE4418/28), SDA/I2C, 4403, 4433, 4404, 896 etc. It communicates with the system as USB 2.0 full speed device.

POSIFLEX TOOLS

In the preinstalled OS there will be a program group named "POSIFLEX Tools" for specific Posiflex device(s) installed.

POSIFLEX POWER SWITCH MANAGER

The power switch manager determines the UPS control and function of the hardware power switch that is at side of the machine.

When the manager program is installed, there is an item [Posiflex Power OFF] in the system's "Start" menu. The window display of this program is like the picture at the right.
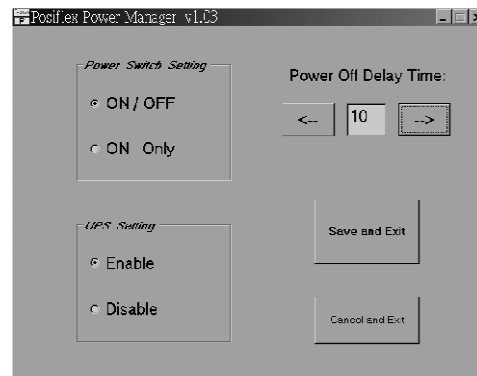
POWER SWITCH SETTING

The function of the power switch that is at side of the machine can be defined here. When "ON/OFF" function for this switch is selected, the power switch turns the system on when the system is off and turns the system off when the system is on. When "ON Only" function for this switch is selected, the power switch always turns

the system **on** regardless of the status whether the system is On or Off. In this way, accidental switching off of the system is avoided. However, the software power off function or the Windows system shut down function has to be engaged to turn off the system in such approach.

POWER OFF DELAY TIME

This function defines the time delay between the software power off command in the [Posiflex Power OFF] "Start" menu and the actual power off. The count is programmable between 1 and 255, and each count represents 1 sec delay. This software power off command is an irrevocable process just like pulling the plug after a certain delay to allow the shutdown procedures. So special care must be exercised in using this software power off command. However, this command must be engaged to turn the power off when the power switch is set to "ON Only".

POSIFLEX MSR MANAGER

For systems with USB MSR on side mount upgrade kit, the USB MSR manager helps defining several characteristics in output format control for reading the magnetic stripe card.

Please find the subfolder \Drivers\SD Series\USBMSR_xxx in Posiflex product information CD and execute the "SETUP.EXE" to install the USB MSR Manager. The screen shot of the program is similar to the above picture [Posiflex USB MSR Manager] at right. The program will be in "Posiflex Tools" and in [Posiflex USB MSR Init] "StartUp" there will be
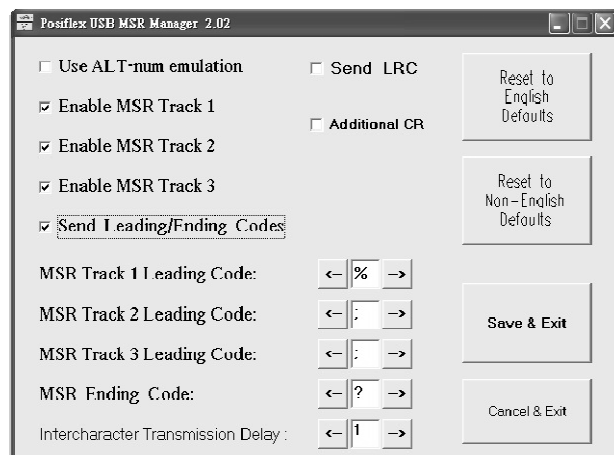
For systems with MSR on PS/2 interface, the "Posiflex MSR Manager" from \Drivers\KP\KBMSR\MSR_xxx shall be installed. It operates in similar way to the Posiflex USB MSR Manager. When the PS/2 MSR in KP-100 is used under DOS

environment, please copy the \Drivers\KP\KBMSR\DOS\MSR.exe to the root directory and execute it to generate a "MSR.dat" file also in root directory. Please include command "MSR –s" in the autoexec.bat for proper operation.

USE ALT-NUM EMULATION

This function is required only for language systems using a different keyboard layout of the alphabetical part from the US keyboard when track 1 of the (USB) MSR is enabled. This function will have no influence if the MSR uses only track 2 and/or track 3. The reason is that the data of the MSR are sent to the host as if they were keyed in from a keyboard. When the alphabetical data in track 1 of the MSR is read, the data goes to the keyboard controller and the system keyboard controller interprets it according to the keyboard layout set for the country. The keyboard layouts could cause some confusion among some European countries (For example, the location for "A" in US keyboard is that for "Q" in a French keyboard. The location for "Z" in US keyboard is that for "Y" in a German keyboard.) One way to deal with such problem is to use the "Alt-num" approach. This means that, for example, when "A" is read, the scan codes for pressing and holding "Alt" key while pressing "6" and "5" keys of the numerical keypad consecutively are sent to the keyboard controller. Therefore, the data will not be misinterpreted regardless of the keyboard layout.

ENABLE MSR TRACK 1

A tick in the check box enables the reading of track 1 data if the reader head for track 1 exists. Without this check, the data of track 1 on the MSR will be ignored.

ENABLE MSR TRACK 2

A tick in the check box enables the reading of track 2 data if the reader head for track 2 exists. Without this check, the data of track 2 on the MSR will be ignored.

ENABLE MSR TRACK 3

A tick in the check box enables the reading of track 3 data if the reader head for track 3 exists. Without this check, the data of track 3 on the MSR will be ignored.

MSR WILL SEND THE LEADING CODE

In data encoding of the magnetic stripes, each tracks are separated with each start/end sentinels. However the user may decide whether to send codes of/for these sentinels or not depending on the requirement of the application software. The MSR will always send a "CR" (carriage return) signal to end of each track data for separation if this item is unchecked.

MSR TRACK 1 LEADING CODE

MSR TRACK 2 LEADING CODE

MSR TRACK 3 LEADING CODE

MSR ENDING CODE

Once the codes for the sentinels of each tracks are defined to be sent to the system, the leading codes for each start sentinels and the ending code for the common end sentinel can be selected from a table of displayable characters with ASCII code from 20h to 7Eh. Clicking on each left/right button selects each code. The default track 1 leading code is "%"; the default track 2 and track 3 leading code is ";"; the default ending code is "?".

TRANSMISSION INTERCHARACTER DELAY

Usually, the processing algorithm and the keyboard data input buffer in an operating system are arranged in such a way that the system resources are preserved as much as possible while data input from the (USB) keyboard port presents no problem. However, as we know that the amount of data read from one single swipe of MSR can be very much larger than any possibly fastest keyboard entry in same duration. Some operating system may be unable to handle such a bunch of data in so short time. Therefore, a so-called intercharacter delay is introduced to allow the system to digest the input data. When data read from the MSR is marching to the system, a programmable time delay is inserted between any two characters. The value to define this intercharacter delay ranges from 0 to 32. The correspondent delay time ranges from 2 ms to 66 ms.

SEND LRC

This item is available in USB MSR manager only. When the check box is ticked, the MSR sends LRC to the host as part of data for Application Program to double check.

ADDITIONAL CR

This item is available in USB MSR manager only. When the check box is ticked, the MSR sends a carriage return signal to the host at end of each track data after the ending code for Application Program to separate each field.

RESET TO ENGLISH DEFAULTS

RESET TO NON-ENGLISH DEFAULTS

These two options provide users to reset all the MSR maneuver functions to the proper defaults according to the system language the user uses. This consideration involves mostly of the Alt-Num emulation and the intercharacter delay.

PROGRAMMABLE KEYPAD

When a upgrade kit PS/2 interface KP-200 or USB interface KP-200U is preinstalled

in this system, an utility called "Posiflex Programmable Keyboard" or "Posiflex USB Programmable Keyboard" will appear in the program gro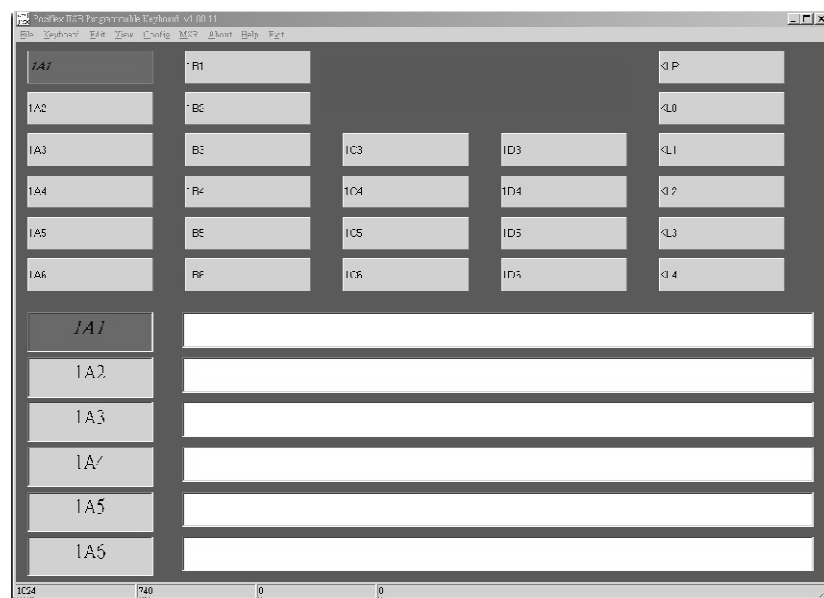up "Posiflex Tools" of the preloaded OS. This utility is used to define the programmable keys on KP-200 or KP-200U under Windows environment. \Drivers\KP\KBW40.xxx (for KP-200) or

\Drivers\KP\uKBW.xxx (for KP-200U) in Posiflex product information CD is the subfolder for executing the "SETUP.EXE" to install this utility. There will be a warning screen before the screen shot similar to the picture at above right to ask the user not to disturb the keyboard initialization when this utility is engaged. To edit the content for a specific key please select the position from the key map after the warning screen disappears. The color of that key will change and the content entered in the editing area will be accepted for its content to be programmed.

THE COMMAND MENU

In the command menu, there are "File", "Keyboard", "Edit", "Config", MSR", "About", "Help" and "Exit". The "File" menu can be used to open an existing template file to be edited in this utility or to save the edited result into a template file or to exit this utility. The "Keyboard" menu can be used to read the current content in the programmable keypad to be edited in this utility or to write the edited result into the programmable keypad. The "Edit" menu helps the editing operation like copy, paste or clear the programmed content of a programmable key. Please ignore any gray command relating to "Page" that is applicable only to other models of Posiflex programmable keyboard and remains here only for consistency consideration. Same comment applies to the gray "View" menu. The "Config" menu determines the keypad beep response and the "InterCharacter Delay" of the keypad output. The "MSR" menu in the keyboard programming utility was reserved for some earlier infrastructure and should not be used. Please use the (USB) MSR Manager for MSR setup as in above section. The "About" menu provides information of this utility itself. The "Help" menu explains the contents in next paragraph. The "Exit" provides the termination of this utility.

SPECIAL CONTENTS

One of the features that a Posiflex programmable keyboard / keypad outclasses other competitors is that the contents to be programmed is not limited in those displayable characters only. The programmable content includes those editing keys such as arrows on a usual PC keyboard and function keys such as F1 to F12, "Shift", "Esc" etc. and even a programmable delay time. In the editing area, click the right button of a mouse, a multilevel menu will appear for selection of these special contents.

THE ANSWER BACK CODES

The answer back codes of the 6 position electronic control key are noted in the keyboard programming with the locations coded as "KLP", "KL0", "KL1", "KL2", "KL3" and "KL4" in the key-layout map of page L1. These answer back codes will be issued by the programmable keyboard to host system whenever the 6 position electronic key is switched to a new position (there will be a time delay as determined in the configuration of the keyboard programming utility, this time delay is useful to give only the answer back code of the last position of control key when it is turned across multiple positions) or when the keyboard receives an "Enquiry" command from the host system.

POSIFLEX USB TOUCH MANAGER

For HT-4600 series with touch control panel, the "Posiflex USB Touch Manager" will be installed with the preloaded OS and there will be 4 utilities in the "Posiflex USB Touch Tools" program group with "Posiflex USB Touch Manager" being the main program.
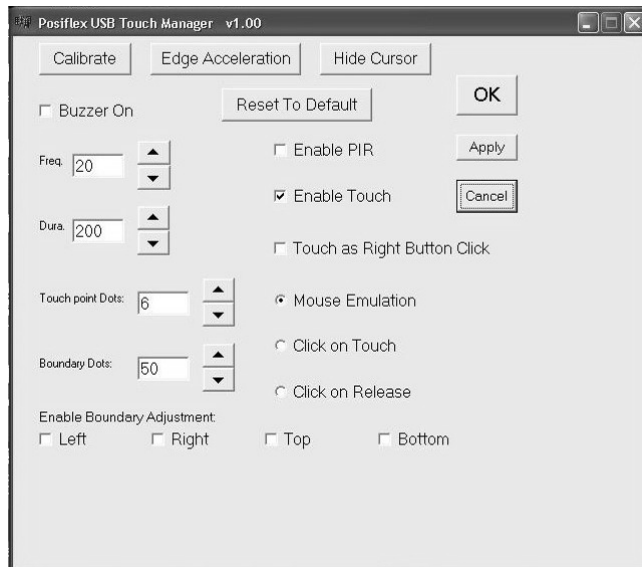

POSIFLEX USB TOUCH MANAGER

Most items in this utility should be easily understandable to average user. Followings are just some reminders on some items.

● **Calibrate** – This button engages the "Posiflex USB Touch Calibrator".
● **Edge Acceleration** – This function engages the "Posiflex USB Touch Edge Acceleration Tool" and helps to find the hidden taskbar or thin scroll bar through touch.

- **Hide Cursor / Show Cursor** – This button hides or shows the mouse cursor on screen display. Please never hide cursor before the touch is enabled and calibrated.
- **Buzz On** – This check box together with the 2 list buttons below it determines the frequency and duration of the internal buzzer beep as response to touch on touch panel.
- **Touch Point Dots** – This list button selects the size of touch point on touch panel. A too small touch size makes the mouse cursor jumpy or even bouncing. A too large touch size results in unsatisfactory touch accuracy.
- **Reset To Default** – This button resets all touch parameters.
- **Enable PIR** – This check box is not applicable to the monitor. Please keep it unchecked.
- **Enable Touch** – This check box must be checked to have the touch panel working.
- **Touch as Right Button Click** – This check box defines each touch on touch panel as clicking the right button of mouse at that point. When it is unchecked, each touch will work as clicking the left button of mouse. (Ref. to the right hand version of mouse)
- **Mouse Emulation/Click on Touch/Click on Release** – Only one of the three radio buttons can be selected. The mouse emulation refers to the drag and drop function.
- **OK** – This button accepts all parameters set and closes the utility window.
- **Apply** – This button accepts all parameters set and remains in the utility window.
- **Cancel** – This button discards all changes to the parameters and closes the utility window.

USB TOUCH CALIBRATOR

This program helps re-calibrating the touch position with the USB mouse emulation. Please touch the 3 or 9 calibration boxes and a confirmation box that appear sequentially.
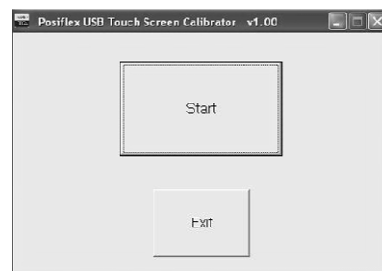
USB TOUCH EDGE ACCELERATION TOOL

This program helps to find the hidden taskbar or thin scroll bar through touch.

- **Enable ...** – Each check box determines whether or not to engage edge acceleration against which edge of screen.
- **Margin** – This list button selects the range to engage edge acceleration toward the edge before the edge is reached.
- **Compensation** – This list button selects the distance to advance the mouse toward edge from touch point.
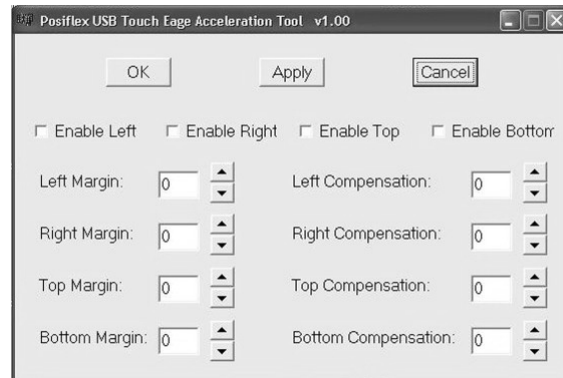
USB TOUCH RIGHT BUTTON TOOL

This tool differs slightly from the "Touch as Right Button Click" check box in the USB touch manager. When executed, there will be a small window of "One Shot Right Button" appearing on desktop. Any touch on the panel right after touching this small window will work like clicking the right button of a right-handed mouse at that point. However, the next touch will resume the left button of mouse unless the small window is touched again.
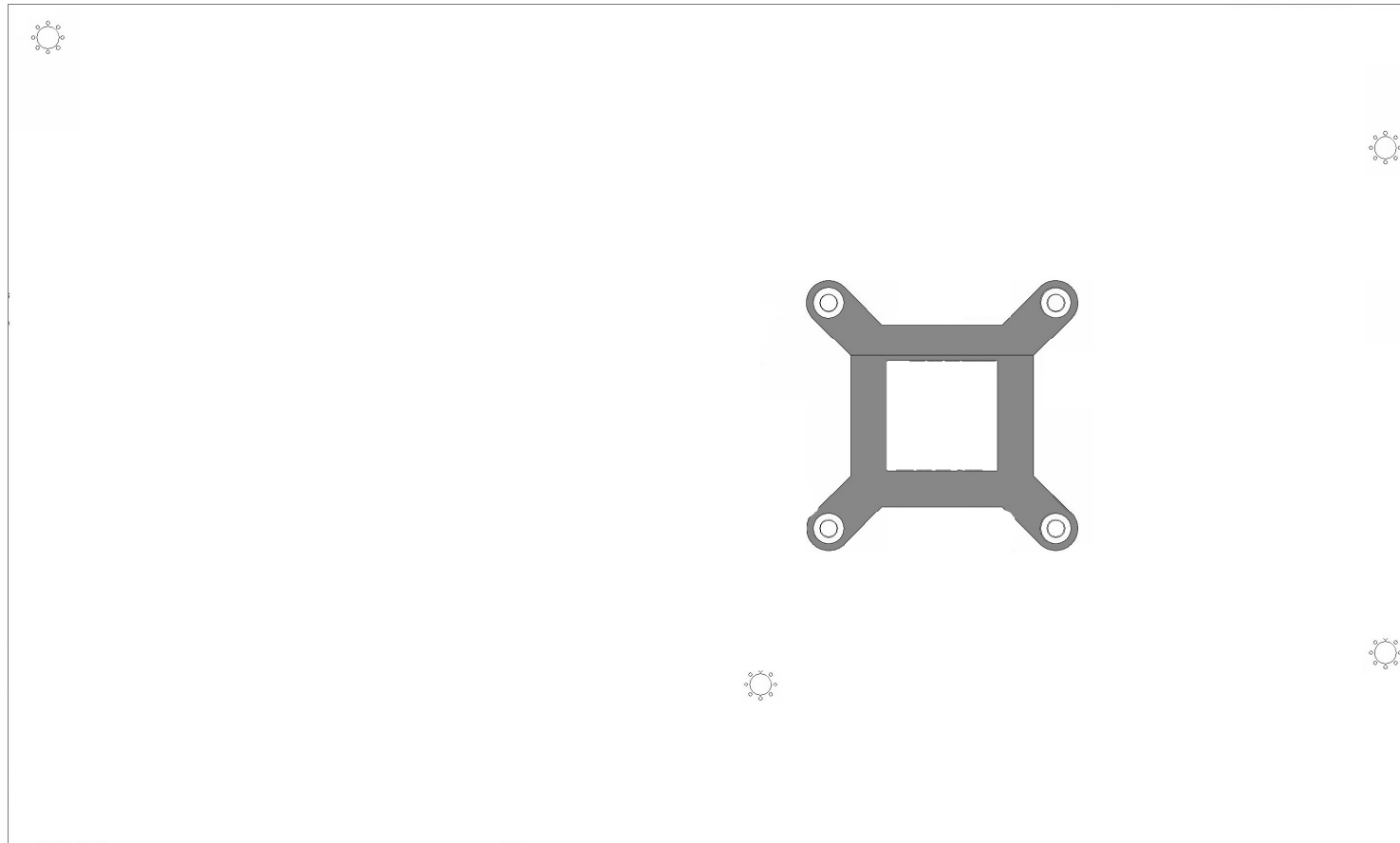
HARDWARE DETAILS

MAIN BOARD (HT-4600)

COMPONENT SIDE

![POSIFLEX]
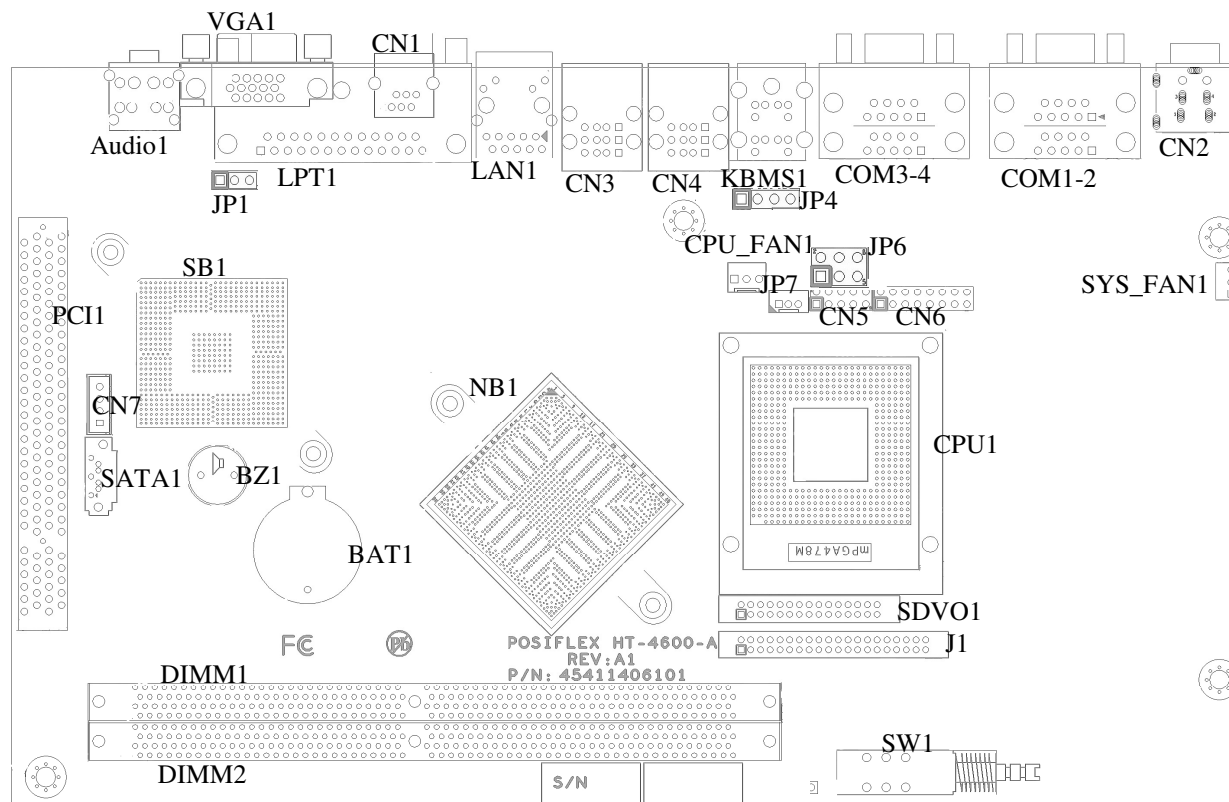
SOLDER SIDE

JUMPERS AND CONNECTORS

ON COMPONENT SIDE

Position	Part Spec	Usage
AUDIO1	DUAL JACK	Mic. in + Line out
BAT1	BATSKTV	Round Socket for CR2032
BZ1	BUZZER	Buzzer
CN1	RJ11	Cash drawer connector
CN2	mDIN 4 JACK	12V DC-IN 80W
CN3	USB jack x3	USB Port 0, 1, 2
CN4	USB jack x3	USB Port 3, 4, 5
CN5	HDR 2x5	LPC 80 Port Debug Card Header
CN6	HDR 2x7	
CN7	HDR 1x3 w/L	SATA Port Power Connector
COM1-2	D9Mx2	COM1 &2 ports
COM3-4	D9Mx2	COM3 &4 ports
CPU_FAN1	HDR 1x3	Connector for CPU Fan
CPU1	mPGA478 socket	CPU Socket
DIMM1	DDR2 DIM	For DDR2 667/800MHz
DIMM2	DDR2 DIM	For DDR2 667/800MHz
J1	HDR x3	
JP1	HDR 1x3	CMOS selection
JP4	HDR 1x4	PS2 MOUSE Selection
JP6	HDR 2x3	COM 2/3 +12V power supply
JP7	HDR 1x3	Micro Processor Firmware Update Header
KBMS1	mDIN6Fx2	PS/2 KB & PS/2 Mouse Ports
LAN1	RJ45	Ethernet 100 Base T / 1000 Base T
LPT1	D25F	Parallel Port
NB1	FC-BGA IC	NB Chip
PCI1	PCI SLOT	PCI Extension Slot
SATA1	SATA connector	On board connector for SATA HDD
SB1	FC-BGA IC	SB Chip
SDVO1	HDR 15x2	LCD connector
SW1	DC SW	Power Switch
SYS_FAN1	HDR 1x3	Connector for System Fan
VGA1	3x5DB jack	2nd display connector

JUMPER SETTINGS

The "★" marks in the following tables denote the factory default settings.

CMOS DATA CONTROL

JRTC STATUS	CMOS DATA CONTROL	
PIN 1-2 short	Clear CMOS data	
PIN 2-3 short	Normal operation	★

COM 2/3 +12V POWER SUPPLY

JP6 STATUS	COM 2/3 +12V POWER SUPPLY
1-3 Short	Support COM3 DB1 = 12V
2-4 Short	Support COM2 DB1 = 12V
3-5 Short	Support COM3 DB1 =DCD
4-6 Short	Support COM2 DB1 =DCD

PS2 Mouse Selection

JP4 STATUS	PS2 Mouse Function	
All open	Through PS/2 Touch Controller(HT-44)	
1-2, 3-4 short	For PB-4600(No Touch)	★

SERIAL ADAPTOR CARD HT-022
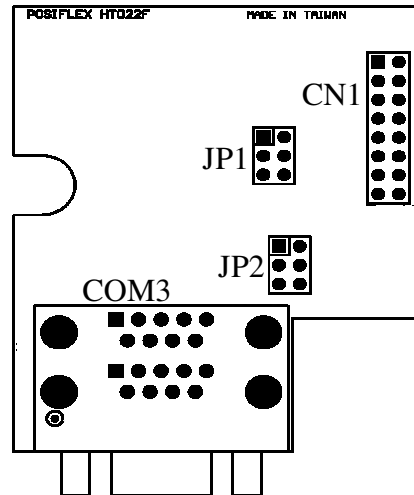
JUMPERS AND CONNECTORS

ON COMPONENT SIDE

Position	Part Spec	Usage
CN1	HDR 2x7	LPC Connector for CN3 in Main Board
COM3	D9Mx2	COM6 Port on Top of COM5 Port
JP1	HDR 2x3	+5 V DC Supply Select for COM5/6
JP2	HDR 2x3	+12 V DC Supply Select for COM5/6

JUMPER SETTINGS

The "★" marks in the following tables denote the factory default settings.

+5 V DC SUPPLY SELECT FOR COM5/6[(Note)]

JP1 STATUS	COM5/6 PIN9 SETTING	
1 – 3 short	COM5 Pin9 connected to 5 V	
3 - 5 short	COM5 Pin9 connected as RI	★
2 – 4 short	COM6 Pin9 connected to 5 V	
4 - 6 short	COM6 Pin9 connected as RI	★

+12 V DC SUPPLY SELECT FOR COM5/6(Note)

JP2 STATUS	COM5/6 PIN1 SETTING	
1 – 3 short	COM5 Pin1 connected to 12 V	
3 - 5 short	COM5 Pin1 connected as DCD	★
2 – 4 short	COM6 Pin1 connected to 12 V	
4 - 6 short	COM6 Pin1 connected as DCD	★

Note: Please note that the 5 V or 12 V DC supply should be selected only for supporting the Posiflex serial devices that are designed to be powered from this source. Whenever such Posiflex device is to be removed from this port, the 5 V or 12 V DC supply must be deselected.

LCD / TOUCH CONTROL CARD

COMPONENT SIDE

HT-44 (PS/2 & USB touch interface)

SOLDER SIDE (HT-44)

VR1
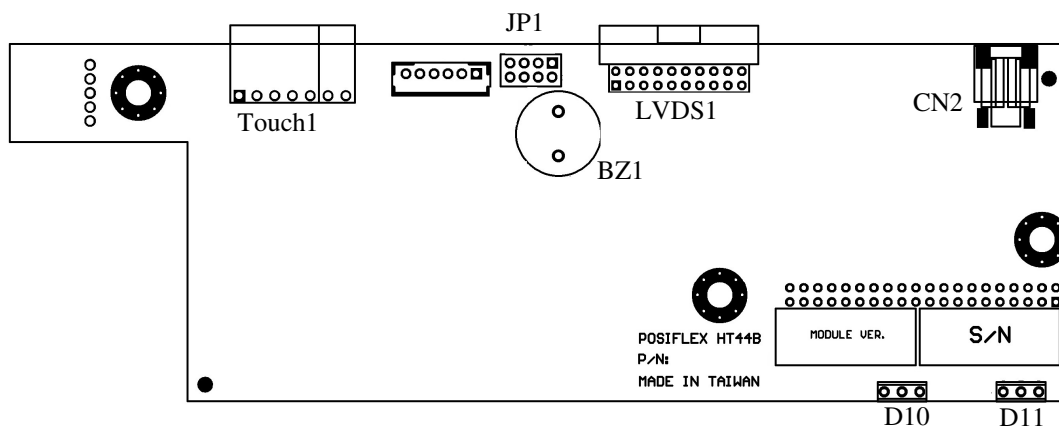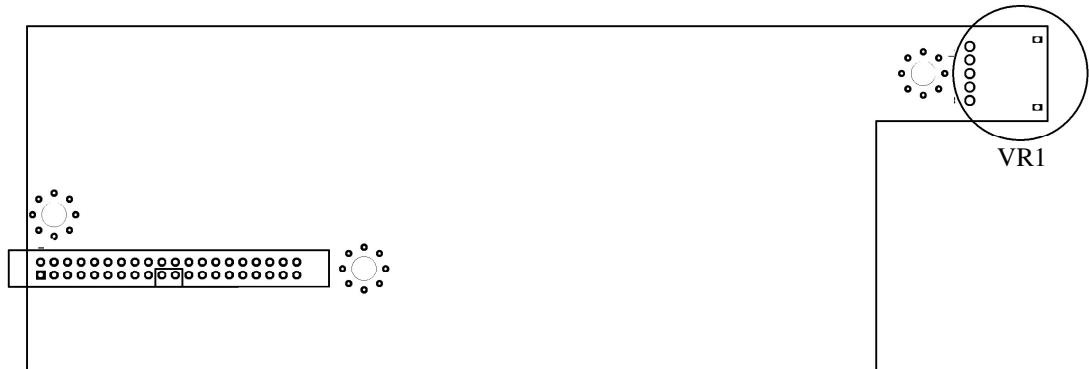
JUMPERS AND CONNECTORS

ON COMPONENT SIDE

Position	Part Spec	Usage
BZ1	Buzzer	Buzzer
CN2	HDR 1x2	LED Back Light Header
CN3	HDR 1x6	Firmware Update Header For Touch Panel Controller
JP1	HDR 2x4	Touch Panel OS Support Setting
LVDS1	HDR 2x10	Panel Header For 18 Bit LCD

ON SOLDER SIDE

Position	Part Spec	Usage
VR1	VR w/Wheel	Brightness controller

JUMPER SETTINGS

The "★" marks in the following tables denote the factory default settings.

TOUCH SETUP

STATUS OF JP3 ON SOLDER SIDE	APPLICABLE OS	
1-2 OFF	Linux / Win CE	
1-2 ON	Win98/Win2K/WinXP (Default)	★
3-4 OFF	Fujistsu Touch Panel	

3-4 ON	ELO Touch Panel (Default)
5-6 OFF	Windows/Linux/WinCE(Default) ★
5-6 ON	MS-DOS
7-8	Reserved

USB MSR CONTROL BOARD (SD320)

COMPONENT SIDE
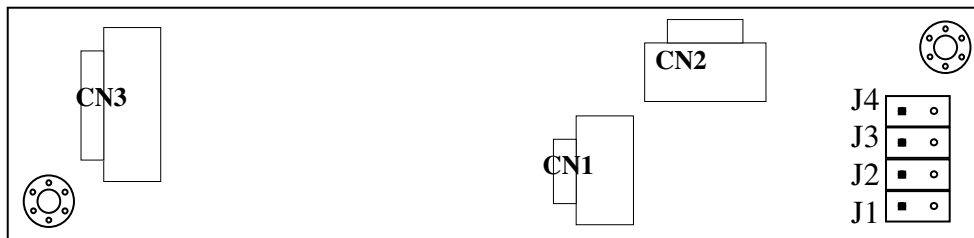
JUMPERS AND CONNECTORS

ON COMPONENT SIDE

Position	Part Spec	Usage
CN1	SMD connector 5p	To main board CN5
CN2	SMD connector 6p	Reserved
CN3	SMD connector 8p	To MSR reader head
J1	mini HDR 1 x 2	Alt + Num
J2	mini HDR 1 x 2	Num Lock
J3	mini HDR 1 x 2	Class
J4	mini HDR 1 x 2	OS

JUMPER SETTING

Jumper	J1	J2	J3	J4
Function	Alt + Num	Num Lock	Class	OS
When Open	Enabled	Enabled	Vendor	DOS
When Short	Disabled	Disabled	HID	Windows

Note: The Enable/Disable for each Track and Leading/Ending Code can only be set through use of USB MSR Manager.

![POSIFLEX]

SATA HDD RAID CONTROL CARD (FT607A)

HDD SIDE

S1

SATA1

S1   P1

SATA2

COMPONENT SIDE

6 5

JP1

2 1

1   1   1

J2   CN2   CN1

U2

SW1

Y1
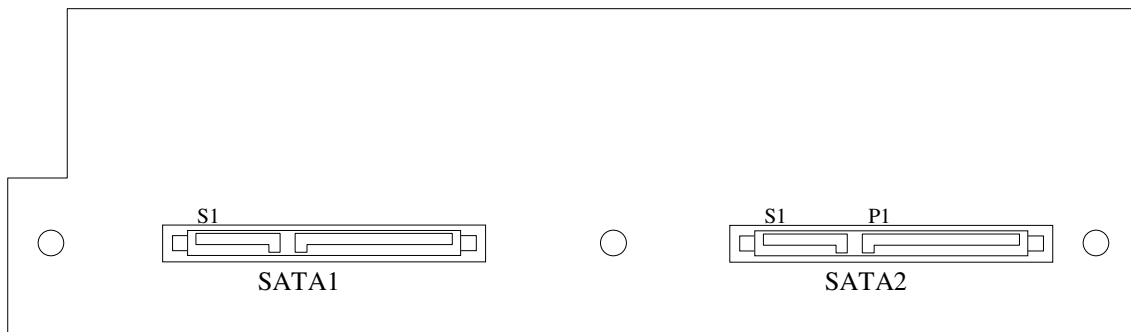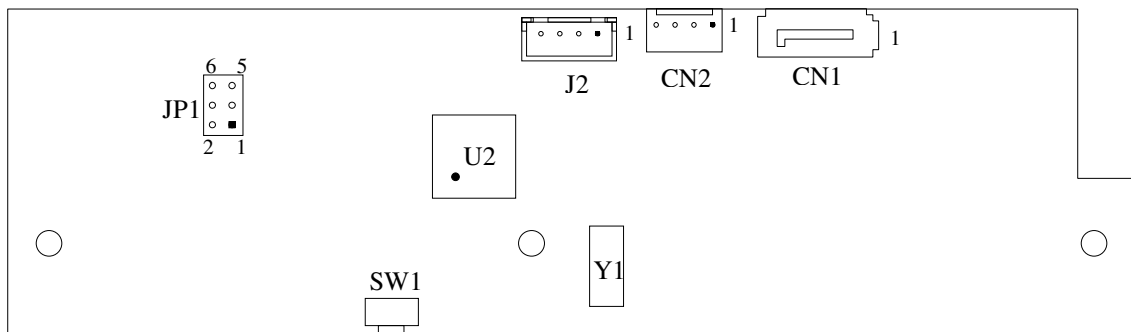
CONNECTORS

ON HDD SIDE

Position	Part Spec	Usage
SATA1	SATA HDD CONN	To 1st SATA 2.5" HDD
SATA2	SATA HDD CONN	To 2nd SATA 2.5" HDD

ON COMPONENT SIDE

Position	Part Spec	Usage
CN1	SATA DATA CONN	To CN5 or CN10 of main board
CN2	HDR 1x4 w/L	To CN3 of M/B
J2	HDR 1x4 w/H	To CN4 or CN7 of M/B
JP1	HDR 2x3	Default RAID mode setup (1-2, 3-4 short)
SW1	Tactile switch	Reset switch

SERVICE AND SPARE PARTS

SERVICE GUIDE

The assembly/disassembly operations for PB-4600 are almost identical to those involved for HT-4600 below with only difference in the main LCD panel and the side mounts kit being inapplicable.

DISCONNECT ALL CABLES

Press inward both plastic buttons at lower rear corners on both sides of the system unit (circled in right picture) to release the lower part of back cable cover. Carefully lift the back cable cover to release it from the hooks. Disconnect all cables in the main connection area before any operation to the inside of HT system.

SIDE MOUNT UPGRADE KIT
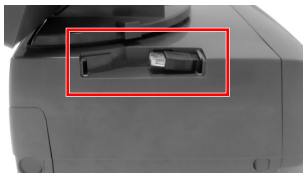
Open the right top side cable cover on main body of HT system and disconnect the SD300 or KP200U from the extended USB port. Remove the 2 screws on back of right edge of the display screen to release SD300 from the system.
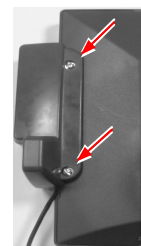
SEPARATE LCD PANEL ASSEMBLY

Push the rectangular shape plastic button on right side of base of the LCD panel toward the base center to turn the display to the leftmost position. Please note the tiny semicircular plastic push button on base edge circled in the right picture. Push both the rectangular plastic button and the semicircular button with the display at the leftmost position; you can lift the whole LCD assembly
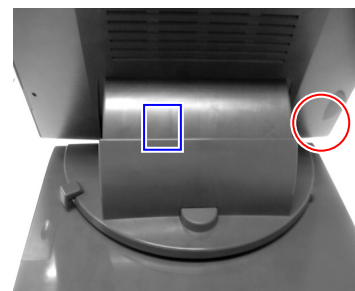
up from the main system unit with a ribbon cable in connection. Please find the connector removal strap from inside the bottom of the LCD assembly. Disconnect this cable by pulling at the strap. **Don't ever pull the cable itself.** Then you can take the LCD assembly aside and put it in a place safe from any scratch or damage.

INSIDE LCD PANEL ASSEMBLY

If not for working on either the LCD panel or the touch panel, the disassembly of display screen is not required and this section can be skipped.


Hooks from
Front Bezel

Please first notice the 8 hooks on the front bezel holding the back cover at about 6 cm (2.5") away from each corner. The simplified drawing on the left indicates the positions of these hooks as viewed from the back of the display screen.
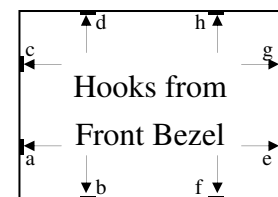
It takes some skill and strength to get the front bezel unhooked from the back cover. The pictures at right indicate the position and force to engage for this operation. Please keep cautious not to get scratch/damage on the touch panel or LCD panel.
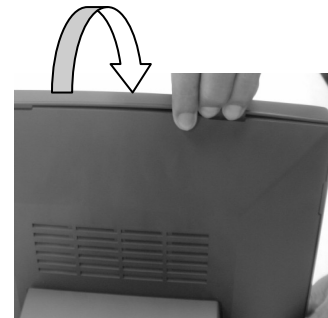

Remove the 2 blue-circled flat head screws on bottom edge of the LCD and touch panel assembly in lower left picture. Lift this bottom edge and gently unhook the panel assembly from metal bracket in back cover at top edge at the yellow arrows in the lower right picture.
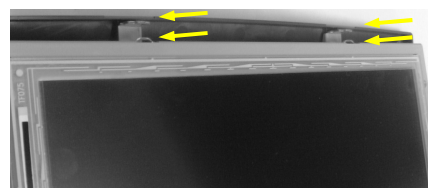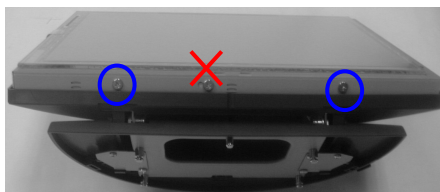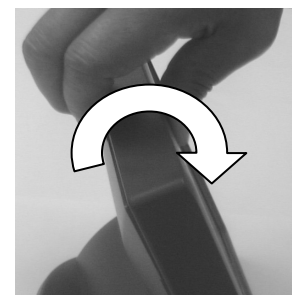
The letter marks in the right picture of the inner side will be used in later descriptions.

REPLACE CONTROL BOARD
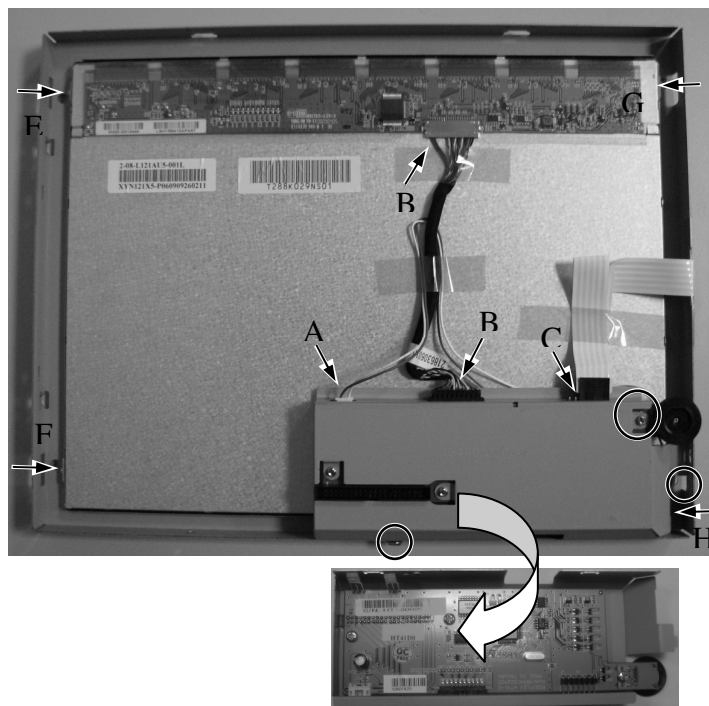
Remove LED backlight cable, LCD cable, touch cable at points A, B, C (**Don't pull at wires!**) and unfasten the screws which circled in the left picture. Its metal casing and control board can be replaced when required.
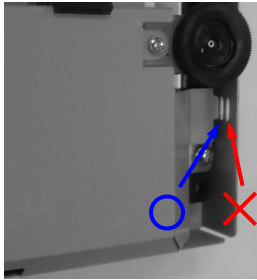
REPLACE LCD PANEL

To replace a LCD panel, the control board with its metal casing, have to be removed beforehand. Remove 4 screws with washers at points E, F, G and H to release LCD panel for replacement. Please insert the screws through the split washer and then the plane washer before screwing back the LCD panel to the metal frame.

REPLACE TOUCH PANEL

The touch panel is adhered to the metal frame with positional precision. The touch panel + metal frame can be replaced once the LCD panel is removed.
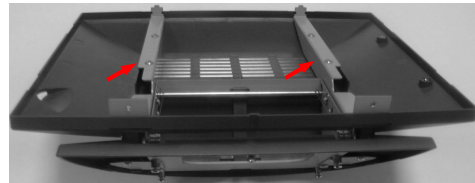
REBUILD LCD PANEL ASSEMBLY

There are some special watch points when rebuilding the LCD panel assembly back to one piece besides reversed order of operations aforementioned. Please make sure that the 2 LED's comes out of the 2 holes in metal frame as indicated by red arrows in the right picture when reinstalling the control board with its metal casing. Please also notice the leading edge of the metal casing for control board must be inserted to the lower slit in the metal frame as indicated by blue circle in the left picture. If it is inserted to the slit represented by the red arrow in the picture, the brightness adjust knob will be obstructed.
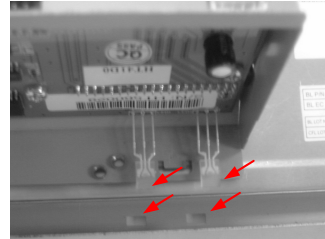
If you have both models of HT series with and without touch panel, please pay particular attention not to confuse the parts that their difference may be overlooked. Please note that the metal casing for control board and the 2 metal supports in the back cover assembly indicated by red arrows in the right picture must be reapplied with the correct one.

REINSTALL LCD PANEL ASSEMBLY

Please refer to the picture at right for reinstalling the LCD panel assembly back onto the top of HT series if there is no more operation in main unit to do. The upper part in the picture shows the bottom of the LCD panel assembly and the lower part shows the top of HT series main unit.

First insert the LCD + touch cable to the connector in opening of LCD assembly bottom with the red wire at left as indicated by yellow
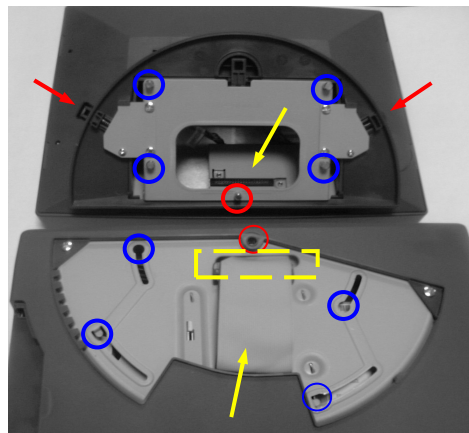
arrows. Adjust the excessive cable back into the main unit through the opening in yellow dashed window on top of main unit when joining the LCD assembly with the main unit to avoid **damage in application**. To join the two parts, aim the red circled metal pivot to the red circled pivot hole in top plastic cover and the rest 4 blue circled metal posts to the 4 blue circled holes in top metal cover of main unit. Push inwards the 2 red arrowed plastic buttons and evenly seat the bottom of LCD assembly to main unit top cover with all the 5 matches exact. Check that there is no miss before you release the 2 plastic buttons.

OPEN THE MAIN UNIT

The main unit can also be opened without having the LCD panel assembly separated with some precautions. First turn the panel to straight up position if the panel is not removed. Prepare enough space in front of the HT system and lay a piece of clean soft clothes of appropriate size there to prevent damage. With the back cable cover opened, push in the circled spring button in the right picture above on both sides of chassis and raise the rear edge of the top cover.
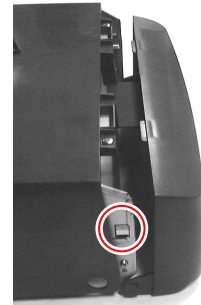
POLE MOUNT UPGRADE KIT

Current family members of pole mount upgrade kits for HT / PB series include VFD type customer display PD-2601 and LCD type customer display PD-307 for general purpose and PD-7621 for oriental language characters. Remove the pole base fixing screw marked as in red circle in the right picture to allow the base unit of whole pole mount unit to release from locking holes in I/O plate first and then from chassis bottom. Please be **extremely careful** in this release operation otherwise the locking lugs of the base unit could be damaged!
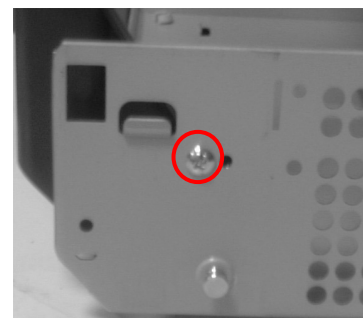
The whole pole mount kit can be further disassembled by pushing in the 2 locking buttons near the bottom of the pole as indicated by red arrows in left picture to separate the base unit. This operation may be required for replacement of the base unit.
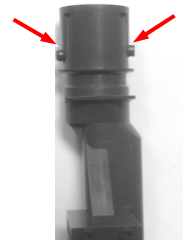
The upper part of the pole mount device can also be separated from the pole by first turning the display head in position as indicated in middle right picture and similarly pushing in the 2 locking buttons to release the pole. Please note that the 2 locking buttons are on 2 separate half cylindrical plastic parts and they must only be at the predetermined position to allow the assembly/disassembly operation. To allow the replacement of interface cable, the display head has to be further disassembled by unhooking the 6 hooks from the back cover as indicated by blue arrows to show the control board inside as in lower right picture.
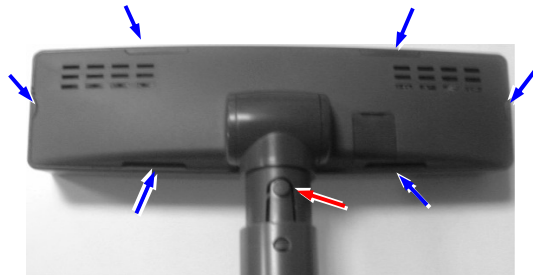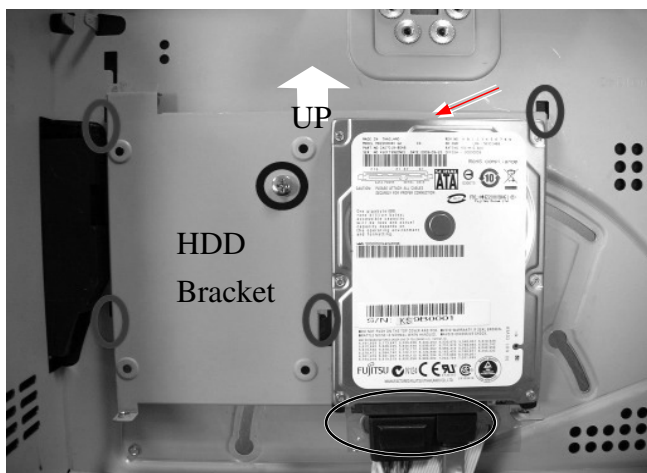
2ND DISPLAY (LM-2010)

If the system is installed with the 10" second display LM-2010, the whole unit with its connection bracket can be easily removed from the base by removing the 4 arrowed screws in the right picture and with the cable removed.
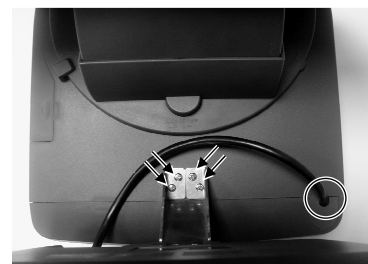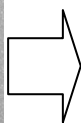
HDD BRACKET AND RAID CARD

After open the top cover, there is a HDD bracket can be found as left picture. To release the HDD bracket, please unplug the SATA and power cables. Afterward, please unfasten the screw which in the middle in the bracket. Next, please push the bracket up then the bracket can be release.

In the HDD bracket, it can be fix 2 HDD in the same bracket as the lower picture. After fasten two HDD in the bracket, please plug the RAID card FT-607 to these 2

HDD and use 2 screws to fix the RAID card onto bracket as right picture.

After fix the RAID card, please connect the SATA and HDD power cables to the connector which are in the FT-607 RAID card then use same way to push the HDD bracket back to the top cover. When push the bracket back to the cover, please notice
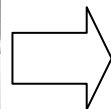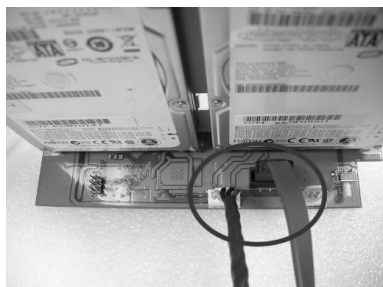
that the lock which in the two side of bracket and circled in the first picture.

IMPORTANT! Please read first before proceeding with RAID installation

When using RAID option for the first time, or when both HDD connecting to RAID board are new, RAID control board needs to be manually reset.

In the scenario where a RAID upgrade kit is being installed to the system that already has the HDD, this existing HDD must get installed to the right side and then the 2nd HDD should be installed to the left side.

The reason for this restriction is because after RAID control board is reset, it will duplicate image from HDD0 to HDD1. It in no doubt that if there is no data in the original HDD and then above restriction does not apply.

Firstly, please power on the system and wait for the first beep sound (during BIOS POST) press the switch 1 of the RAID Control Board for 5 seconds. Restart the system by pressing "Ctrl + Alt + Del". Reset is successful if "External Disk 0" is detected. If this message is not seen, please repeat the reset step again.

COM 5/6 INSTALLATION

For the installation of HT-022 COM 5/6 adaptor board, please connect the cable to the HT-022 first as lower left picture. Next, please fix these 2 com ports to the reserved holes in I/O plate and fasten the Hex screws which circled in the lower middle picture. After that, please connect the other side of cable to the main board which shows in the lower right picture. For more detail of connectors, please refer to the prior chapter "HARDWARE DETAIL"
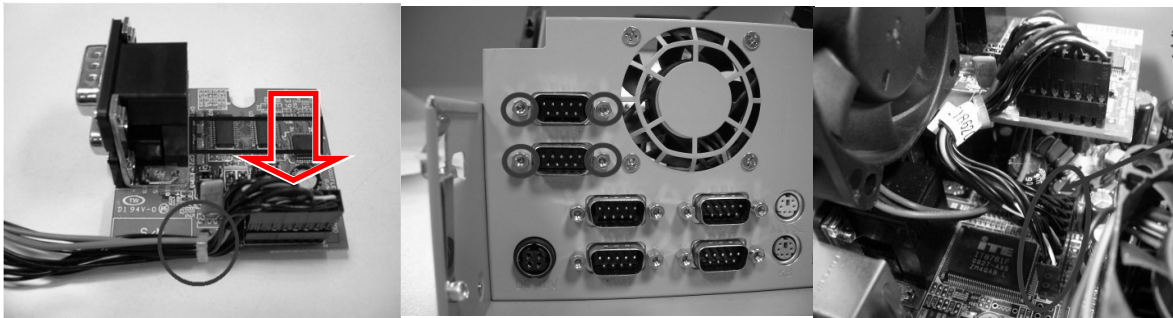
EXTENDED PCI RISER CARD

To apply any PCI extension riser card, please remove the red circled PCI I/O bracket screw and take out the arrowed PCI I/O bracket that is holding the arrowed PCI I/O plate in place as in the upper right pictures.

Please install the PCI adaptor board to the PCI slot first as showed in the second picture in the right. Next, in case of installation of PA-4200 PCI card, please plug the PCI card to the riser card and fix to the I/O plate as arrowed in the third picture in the

right.
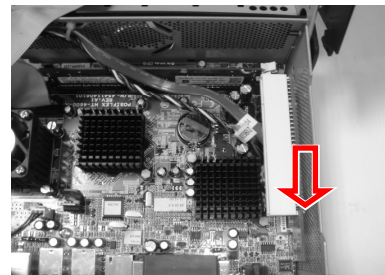
Fix the PCI I/O bracket screw back to the original screw holes and reboot the terminal then the function of PCI card can be use.
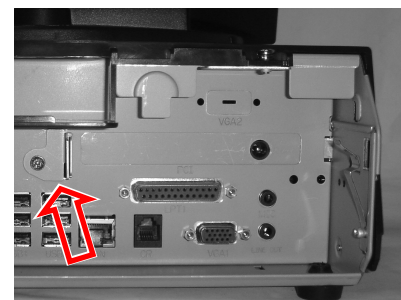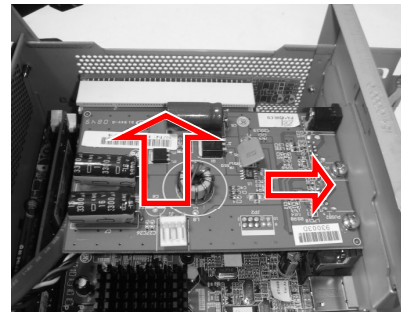
2nd DISPLAY ADAPTOR BOARD

Please turn off the terminal before assemble the VGA adaptor board. Fix the VGA adaptor board to the reserved holes in I/O plate and fasten the Hex screws which circled in the lower picture.

Next, please connect the cable to the VGA adaptor board and connect the other side to the mainboard. After the cable connected, the 2nd VGA board can be use.
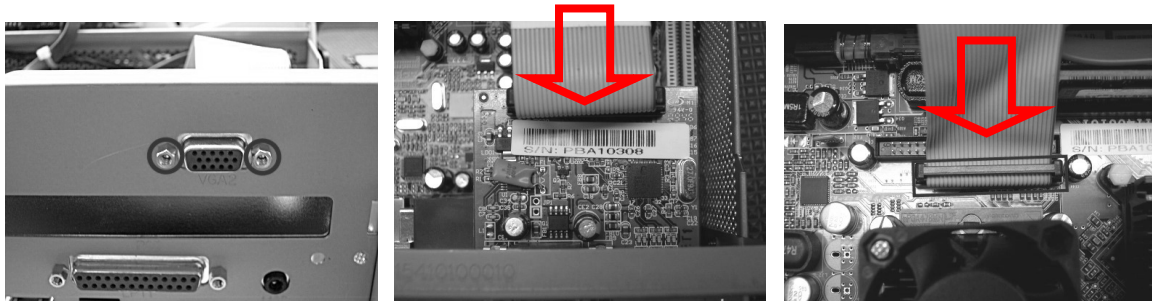
REPLACE MAINBOARD

After removal of LPC adaptor card, PCI riser card, PCI I/O plate, DDR2 SDRAM, system exhaust fan and all type of connections from the main board and please use appropriate tool to release the power switch knob and power switch post (marked in following picture) from the power switch on main board through the gap between power supply and the front metal wall of chassis. Then please remove 4 screws on main board as red-circled in the below pictures to replace the main board with the system I/O plate.
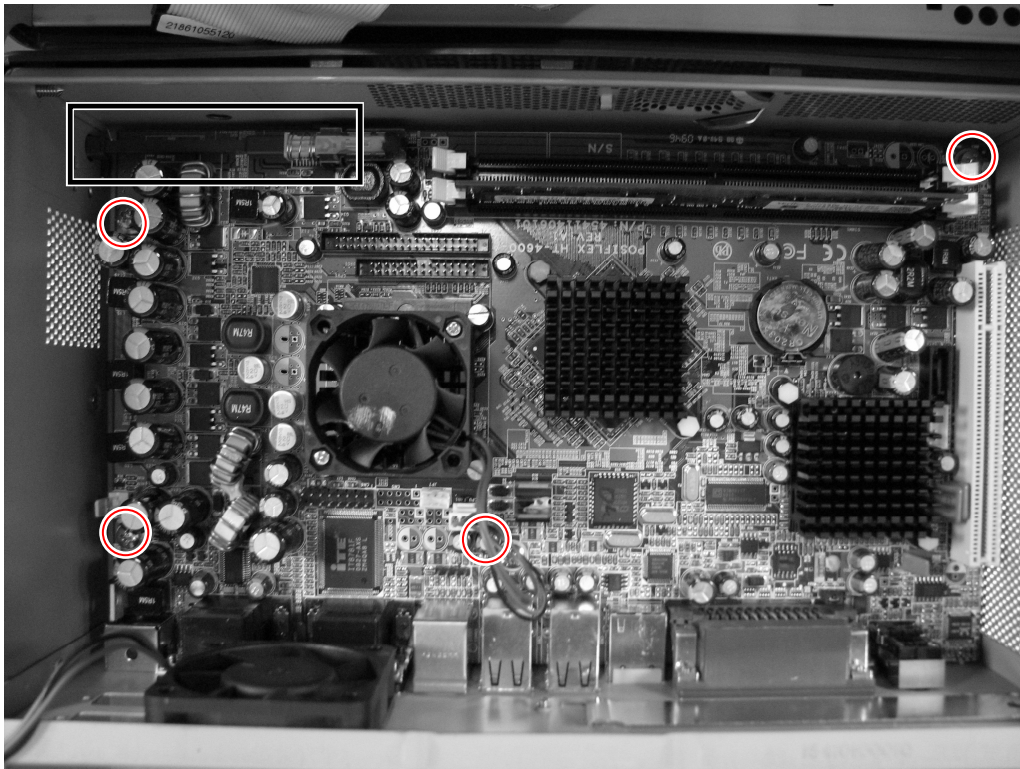
SPARE PARTS LIST

The column "Pos." in the list below refers basically to the ID numbers indicated in the Assembly Drawing. If this column is not available, it refers to a packaging item. The column "S." indicates the alternative selections available for that position. This list is subject to update without notice.

Pos.	S.	Part Number	Description
101	1	35446003003	LCD Front Cover Assembly for HT Series, Black
101	2	35446003006	LCD Front Cover Assembly for HT Series, Ivory
102	1	10684038062	Binding Head Screw #6/32-6L SW+W-Ni
103	1	10501020032	Pan Head Screw M2-3L
104	1	35414007000	Touch Panel & Support Frame Assembly
105	1	35414008000	12.1" TFT LCD Panel w/Packing
106	1	21863060810	LVDS Cable for LCD Panel, L=130mm, 20P to 20P
107	1	45413602111	LED & USB Touch Control Board for HT-4600, Ver.A1
108	1	35414009000	Metal Casing Assembly, w/Mylar for Touch System
108	2	35414010000	Metal Casing Assembly, w/Mylar for Non Touch System
109	1	35446004003	LCD Back Cover Assembly for Touch System, Black
109	2	35446004006	LCD Back Cover Assembly for Touch System, Ivory
109	3	35446005003	LCD Back Cover Assembly for Non Touch System, Black

109	4	35446005006	LCD Back Cover Assembly for Non Touch System, Ivory
110	1	15440310023	Pole Hole Cover, Black
110	2	15440310026	Pole Hole Cover, Ivory
111	1	15440305013	Cable Cover, Black
111	2	15440305016	Cable Cover, Ivory
112	1	15440307013	USB Cable Cover, Black
112	2	15440307016	USB Cable Cover, Ivory
113	1	21943008002	1" SATA Disk Moudle 8G
113	2	21943001602	1" SATA Disk Moudle 16G
113	3	21943003202	1" SATA Disk Moudle 32G
114	1	10501016043	Pan Hand Screw, M1.6-4L
115	1	21955016009	2.5" SATA HDD 160G
115	2	35414002010	2.5" HDD Kit, w/ 1 SATA HDD & Cable
115	3	46611604210	RAID SATA HDD Card, Ver.B0
115	4	35414012000	RAID HDD Upgrade Kit, w/ SATA HDD Card & Cable, w/o HDD
116	1	35415001000	2.5" SATA HDD Cable Set
116	2	35415002000	RAID SATA HDD Cable Set
117	1	10521026212	Pan Head Self Tapping Screw $\S$ 2.6-21L
118	1	21834004120	CPU Fan 40*40*10 mm
119	1	10163737307	Heat Sink 37.4*37.4*30 mm for CPU
120	1	21103190083	CPU Celeron Mobile 1.9GHZ

120	2	21103200063	CPU Celeron 575 2.0G/1M Cache
120	3	21106226013	CPU Intel Core 2 Duo 2.26GHZ
120	4	21106253011	CPU Intel Core TM2 Duo 2.53G
121	1	21837105120	System Cooling Fan 50*50*15mm, 3 Pin/12V, 2 Ball Bearing, 4800RPM
122	1	10523047102	Flat Head Self- Tapping Screw § 4.7-10L
123	1	21863245420	Extension Cable for USB, L=220mm
124	1	35414003010	COM5/6 Adaptor Kit, w/ Adaptor Board & Cable, Ver.E
125	1	21861055120	LCD & Touch Card Cable, L= 200 mm
126	1	35414011000	HT-4600 M/B w/ I/O Connector Plate, w/o CPU & CPU Fan & Heat Sink & COM5/6, Ver.A0
127	1	45443612300	PCI Adaptor Board, w/o Audio Amp
128	1	35446001000	Rubber Foot Pair (Male + Female)
129	1	15440308013	Power Switch Knob, Black
129	2	15440308016	Power Switch Knob, Ivory
130	1	15440309023	Power Switch Post, Black
130	2	15440309026	Power Switch Post, Ivory
131	1	15440306023	Front Cover, Black
131	2	15440306026	Front Cover, Ivory
132	1	35416001000	Metal Chassis for HT/PB-4600 , w/ HDD Bracket
133	1	15440304033	Main Cover, Black
133	2	15440304036	Main Cover, Ivory

134	1	10684038082	Binding Head Screw #6/32-8L SW+W-Ni
135	1	35414005010	24V Power Kit, w/Cable & Power Adaptor, Ver.C
	1	10245112121	Wire Clip, Black 12.1*12 for Side Mount Device
	2	10245112122	Wire Clip, Beige 12.1*12 for Side Mount Device
	1	21901302032	Li-Battery CR2032
	1	21972080125	Power Adaptor, L=1800mm, 4PIN, 12V/80W
	1	21868100510	Power Cord for Australia, L=1800mm, With IEC-C5 Connector
	2	21868200500	Power Cord for Europe, L=1800mm, 3 Wire, PHP-206 TO PHS-305
	3	21868300500	Power Cord for Japan, L=1800mm, IEC 320-C5
	4	21868400501	Power Cord for S.A, L=1800mm, IEC 320-C5
	5	21868500500	Power Cord for U.K, L= 1800mm, 3 Wire, IEC 320-C5
	6	21868600500	Power Cord for USA, L=1800mm, 3 Wire, EC-320-C5
	7	21868800500	Power Cord for India, L=1800mm, IEC 320-C5
	8	21868900500	Power Cord for Argentina, 3 wire, L=1800mm, IEC320-C5
	1	15440510150	HT Series Packing Carton
	1	15440540020	PE Foam for HT Series
	1	15440530020	Cardboard for HT Series
	1	NON	PE Bag 62*55cm
	1	15410900020	HT/PB-4600 User's Manual

ASSEMBLY DRAWING